



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/031,231	01/17/2002	Terence Widdowson	36-1535	8193
23117	7590	12/14/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			GHULAMALI, QUTBUDDIN	
			ART UNIT	PAPER NUMBER
			2637	

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/031,231	WIDDOWSON ET AL.	
	Examiner	Art Unit	
	Qutub Ghulamali	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13 is/are rejected.
- 7) ☒ Claim(s) 3, 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### **Acknowledgement**

1. This Office Action is responsive to the Remarks filed by the applicant on 09/19/2005.
2. Amendment of claims 1, 3, 7, 11 and 13, filed by the applicant on 09/19/2005, is hereby acknowledged.
3. The applicant's amendment of claims 1, 3, 7, 11 and 13, however, does not place the claims in condition for allowance.
4. Applicant's remarks/arguments based on amendments of claims 1, 3, 7, 11 and 13, have been considered but are moot in view of the new ground(s) of rejection.

The rejection based on the new art follows:

### ***Claim Objections***

5. Claim 13 is objected to because of the following informalities: In lines 6 and 10, a modulator is recited. Shouldn't this be a "demodulator"? Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Art Unit: 2637

7. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
8. Claim 1 recites the limitation "the input signal" in step (v), line 2. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 2, 4-11 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Kumar (USP 6,005,894).

Regarding claim 1, Kumar discloses generating a single sideband spread spectrum signal comprising:

- i) generating a complex spreading signal (abstract; col. 4, lines 9-14, 28-33; col. 10, lines 10-43);
- ii) phase-shifting a complex spreading signal in accordance with a Hilbert transform to produce a phase-shifted complex spreading signal (col. 29, lines 13-5, 32-50);
- iii) up converting the complex spreading signal and the phase-shifted complex spreading signal to a higher frequency to produce the single sideband spread spectrum signal (fig. 11; col. 21, lines 44-59);

Art Unit: 2637

iv) band limiting one of at least the complex spreading signal or the single sideband spread spectrum signal (col. 21, lines 59-65; col. 22, lines 15-25); and

v) modulating one of the complex spreading signal or the single sideband spread spectrum signal with the input signal (abstract; figs. 12, 14; col. 15, lines 1-21),

wherein the phase shifting step is performed before the upconversion step.

Regarding claim 2, Kumar discloses modulating a signal of the upconverted complex signal in accordance with the real part of the complex signal combined with the Imaginary part of the phase shifted complex signal (col. 30, lines 25-31); and

modulating a quadrature signal of the upconverted complex signal in accordance with the imaginary pan of the complex signal combined with the real part of the phase shifted complex signal (col. 30, lines 25-42).

Regarding claim 4, Kumar discloses bandlimiting (filtering) is performed prior to the phase shifting (col. 19, lines 35-40; col. 21, lines 5-15).

Regarding claim 5, Kumar discloses bandlimiting (filter 95) is performed after the upconversion (col. 21, lines 25-29).

Regarding claim 6, Kumar discloses modulation is performed after the upconversion (col. 21, lines 44-55).

As to claim 7, claim 7 is an apparatus claim corresponding to method claim 1 and recites substantially very similar limitations and therefore is similarly analyzed as method claim 1 above.

With reference to claim 8, Kumar discloses the band-limiting filter is a low pass filter (fig. 11, elements 78) connected to receive the output of the complex spreading signal generator (col. 21, lines 5-12).

Regarding claim 9, Kumar discloses the band-limiting filter is a band-pass filter (fig. 11, elements 95) connected to receive the output of the complex modulator (col. 21, lines 25-29, 46-50).

Regarding claim 10, Kumar discloses the data modulator is coupled to receive a second signal via the complex modulator (fig. 14; col. 24, lines 52-65; col. 25, lines 1-15).

As per claim 11, Kumar discloses a method of decoding single sideband signal comprising: upconverting the complex spreading signal to a higher frequency (fig. 11; col. 21, lines 44-59); and demodulating a received signal in accordance with the upconverted complex spreading signal (figs. 18-19; col. 31, lines 60-65; col. 32, lines 1-14).

Regarding claim 13, Kumar discloses decoding a transmitter comprises:  
a complex spreading signal generator (abstract; col. 4, lines 9-14, 28-33; col. 10, lines 10-43);  
a phase-shifter connected (Hilbert transform 205) to receive the complex spreading signal from the complex spreading signal generator, connected to receive the phase-shifted complex spreading signal from the phase shifter and arranged in operation to upconvert the complex spreading signal (col. 29, lines 13-25, 32-50); and  
a data demodulator connected to receive the transmitted signal and the upconverted complex spreading signal and arranged in operation to demodulate the transmitted signal to provide a decoded transmitted signal (figs. 18-20; col. 31, lines 60-65; col. 32, lines 7-14).

*Allowable Subject Matter*

11. Claims 3 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patents:

Kumar (USP 6,351,500) discloses an AM-Compatible digital broadcasting method and system.

Clark et al (US005937006), discloses a frequency translating device determines phase and frequency response measurement and analysis.

Baghdady (USP 5,434,577) shows signal modulation methods and apparatus.

Davies et al (USP 5,999,300) shows a hybrid single sideband optical modulator.

Publications:

Bingham, John A.C., "Multicarrier Modulation for data Transmission: An Idea whose Time Has Come", 19990, IEEE Communications Magazine.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2637

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014. The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QG.  
December 5, 2005.

  
**JEAN B. CORRIELUS**  
**PRIMARY EXAMINER**

12.9.05